

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An apparatus for introducing a light beam into a pupil of an eye of a viewer, to thereby project an image onto a retina of the eye, the apparatus comprising:

a light beam generator for generating and outputting a light beam corresponding to the image;

a scanning device for scanning the light beam output by the light beam generator;

a guiding device for guiding the light beam scanned by the scanning device toward the pupil; and

an angle modifying device for modifying a pupil incident angle at which a center line of a scanning angle ~~of~~ through which the light beam is scanned by the scanning device enters the pupil, such that the center line passes through the pupil at a fixed position, irrespective of a change in the pupil incident angle.

2. (Original) The apparatus according to claim 1, wherein the angle modifying device is disposed at a position within a path extending from the scanning device to the guiding device, the position having an optical conjugate relationship with a position of the pupil.

3. (Currently Amended) ~~The apparatus according to claim 1~~ An apparatus for introducing a light beam into a pupil of an eye of a viewer, to thereby project an image onto a retina of the eye, the apparatus comprising:

a light beam generator for generating and outputting a light beam corresponding to the image;

a scanning device for scanning the light beam output by the light beam generator;

a guiding device for guiding the light beam scanned by the scanning device toward the pupil; and

an angle modifying device for modifying a pupil incident angle at which a center line of a scanning angle through which the light beam is scanned by the scanning device enters the pupil, wherein the angle modifying device includes:

a first modifier for modifying the pupil incident angle with respect to a first modifying direction; and

a second modifier for modifying the pupil incident angle with respect to a second modifying direction intersecting the first modifying direction.

4. (Original) The apparatus according to claim 1, wherein the scanning device includes:

a first scanner for scanning the light beam in a first scanning direction;

a second scanner for scanning the light beam scanned by the first scanner in a second direction intersecting the first scanning direction; and

a relay optical system for introducing the light beam from the first scanner to the second scanner, such that the first scanner and the second scanner have an optical conjugate relationship therebetween.

5. (Original) The apparatus according to claim 4, wherein the angle modifying device and the second scanner have an optical conjugate relationship therebetween.

6. (Original) The apparatus according to claim 1, wherein the guiding device includes:

a mirror arranged in front of the pupil; and

a relay optical system for introducing the light beam scanned by the scanning device into the mirror, such that an exit position at which the light beam exits from the scanning device and a position of the pupil have an optical conjugate relationship therebetween.

7. (Original) The apparatus according to claim 1, wherein the angle modifying device includes, a mirror arranged at a position having an optical conjugate relationship with a position of the pupil, and the apparatus further comprising a relay optical system for introducing the light beam scanned by the scanning device into the mirror, and wherein an exit position at which the light beam exits from the scanning device and a position of the mirror have an optical conjugate relationship therebetween.

8. (Original) The apparatus according to claim 1, wherein the angle modifying device modifies the pupil incident angle using an optical element common to the angle modifying device and the scanning device.

9. (Original) The apparatus according to claim 1, wherein the scanning device includes:

a first scanner for scanning the light beam in a first scanning direction; and

a second scanner for scanning the light beam in a second scanning direction intersecting the first scanning direction at a lower speed than the first scanner scans, and wherein the angle modifying device modifies the pupil incident angle using an optical element common to the angle modifying device and the second scanner.

10. (Currently Amended) ~~The apparatus according to claim 1, wherein a set of the scanning device, the guiding device, and the angle modifying device is provided for each of a pupil of a right eye and a pupil of a left eye of the viewer, and the apparatus further comprising:~~ An apparatus for introducing a first light beam into a first pupil of a first eye of a viewer and for introducing a second light beam into a second pupil of a second eye of the viewer, to thereby project an image onto each of a retina of the first eye and a retina of the second eye, the apparatus comprising:

a light beam generator for generating and outputting a first light beam and a second light beam corresponding to the image;

a first scanning device for scanning the first light beam output by the light beam generator;

a first guiding device for guiding the first light beam scanned by the first scanning device toward the first pupil;

a first angle modifying device for modifying a first pupil incident angle at which a first center line of a first scanning angle through which the first light beam is scanned by the first scanning device enters the first pupil;

a second scanning device for scanning the second light beam output by the light beam generator;

a second guiding device for guiding the second light beam scanned by the second scanning device toward the second pupil of the second eye of the viewer;

a second angle modifying device for modifying a second pupil incident angle at which a second center line of a second scanning angle through which the second light beam is scanned by the second scanning device enters the second pupil;

a setting device for setting a display position at which the image is displayed in the form of a virtual image in front of the pupils the first pupil and the second pupil of the eyes, in response to an externally input command; and

a controller for controlling the two angle modifying devices for the pupils of the right and left eyes, respectively, such that two extended center lines intersect each other at the set display position, wherein each of the two extended center lines is defined by extending back the center line of the light beam entering each of the two pupils from a corresponding one of the two guiding devices: the first angle modifying device and the second angle modifying device, such that first and second extended center lines intersect each other at a set display position, wherein the first and the second extended center lines are defined by extending back the first center line of the first light beam entering the first pupil from the first guiding device,

and by extending the second center line of the second light beam entering the ~~another~~ second pupil from the ~~another~~ second guiding device, respectively.

11. (Currently Amended) The apparatus according to claim 10, wherein the setting device includes:

a sight-line sensor for detecting sight lines of the ~~right and left eyes~~ first eye and the second eye of the viewer; and

means for setting the display position to a position at which the sight lines detected by the sight-line sensor intersect each other.

12. (Currently Amended) The apparatus according to claim 10, wherein the setting device is constituted to set ~~a desired~~ the display position of the image to any desired position in response to manipulation of the viewer.

13. (Currently Amended) The apparatus according to claim 10, further comprising:
a first wave-front-curvature modulator for modulating a first wave front curvature of the first light beam leaving the light beam generator and entering the first scanning device;

a second wave-front-curvature modulator for modulating a second wave front curvature of the second light beam leaving the light beam generator and entering the second scanning device; and

a commanding device for providing a command to the first wave-front-curvature modulator ~~to attain a value of the wave front curvature in accordance with a distance from a position of the two pupils to the display position set by the setting device.~~ and the second wave-front-curvature modulator to attain a first value of the first wave front curvature in accordance with a distance from a position of the first pupil to the display position set by the setting device, and to attain a second value of the second wave front curvature in accordance with a distance from a position of the second pupil to the display position set by the setting device.

14. (Currently Amended) The apparatus according to claim 11, further comprising:
a first wave-front-curvature modulator for modulating a first wave front curvature of the first light beam leaving the light beam generator and entering the first scanning device;
a second wave-front-curvature modulator for modulating a second wave front curvature of the second light beam leaving the light beam generator and entering the second scanning device; and
means for controlling the first wave-front-curvature modulator to attain a value of the wave front curvature in accordance with a distance from a position of the two pupils and the second wave-front-curvature modulator to attain a first value of the first wave front curvature in accordance with a distance from a position of the first pupil to a position at which the sight lines detected by the sight-line sensor intersect each other, and a second value of the second wave front curvature in accordance with a distance from a position of the second pupil to the position at which the sight lines detected by the sight line sensor intersect each other.

15. (Currently Amended) The apparatus according to claim 13, wherein:
the first wave-front-curvature modulator includes:
_____ a first lens for converging the first light beam output by the light beam generator;
_____ a first mirror for reflecting the first light beam converged by the first lens to the first scanning device again through the first lens; and
_____ a first distance modifier for modifying a first distance between the first lens and the first mirror, to thereby change the first wave front curvature of the first light beam, and
the second wave-front-curvature moderator includes:

_____ a second lens for converging the second light beam output by the light beam generator;

_____ a second mirror for reflecting the second light beam converged by the second lens to the second scanning device again through the second lens; and

_____ a second distance modifier for modifying a second distance between the second lens and the second mirror, to thereby change the second wave front curvature of the second light beam.

16. (Currently Amended) The apparatus according to claim 14, wherein:

the first wave-front-curvature modifier includes:

_____ a first lens for converging the first light beam output by the light beam generator;

_____ a first mirror for reflecting the first light beam converged by the first lens to the first scanning device again through the first lens; and

_____ a first distance modifier for modifying a first distance between the first lens and the first mirror, to thereby change the first wave front curvature of the light beam, and

the second wave-front-curvature modulator includes:

_____ a second lens for converging the second light beam output by the light beam generator;

_____ a second mirror for reflecting the second light beam converged by the second lens to the second scanning device again through the second lens; and

_____ a second distance modifier for modifying a second distance between the second lens and the second mirror, to thereby change the second wave front curvature of the second light beam.

17. (Currently Amended) An apparatus for introducing a light beam into a pupil of an eye of a viewer, to thereby project an image onto a retina of the eye, the apparatus comprising:

a light beam generator for generating and outputting a light beam corresponding to the image;

a scanning device for scanning the light beam output by the light beam generator, including:

a first scanner for scanning the light beam in a first scanning direction; and

a second scanner for scanning the light beam scanned by the first scanner in a second scanning direction intersecting the first scanning direction;

a guiding device for guiding the light beam scanned by the scanning device toward the pupil; and

an angle modifying device for modifying a pupil incident angle at which a center line of a scanning angle ~~of~~ through which the light beam is scanned by the scanning device enters the pupil, such that the center line passes through the pupil at a fixed position, irrespective of a change in the pupil incident angle,

the angle modifying device including a mirror for receiving the light beam scanned by the scanning device, wherein the first and the second scanner have an optical conjugate relationship therebetween, wherein the second scanner and the mirror have an optical conjugate relationship therebetween, and wherein the mirror and a position of the pupil have an optical conjugate relationship therebetween.

18. (Original) The apparatus according to claim 17, wherein the angle modifying device modifies the pupil incident angle using an optical element common to the angle modifying device and the scanning device.